



WO 2005/056783

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SEQUENCE LISTING

<110> National Institutes of Health  
5 Qasba, Pradman  
Boeggeman, Elizabeth  
Ramakrishnan, Boopathy

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10 Altered Metal Ion Specificity

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20<212> PRT  
<213> Homo sapiens

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&lt;210&gt; 4

&lt;211&gt; 398

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

5

&lt;400&gt; 4

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  1           5           10           15
Ala Ser Leu Gln Arg Ala Cys Arg Leu Leu Val Ala Val Cys Ala Leu
10           20           25           30
His Leu Gly Val Thr Leu Val Tyr Tyr Leu Ala Gly Arg Asp Leu Ser
      35           40           45
Arg Leu Pro Gln Leu Val Gly Val Ser Thr Pro Leu Gln Gly Gly Ser
      50           55           60
15Asn Ser Ala Ala Ala Ile Gly Gln Ser Ser Gly Asp Leu Arg Thr Gly
      65           70           75           80
Gly Ala Arg Pro Pro Pro Pro Leu Gly Ala Ser Ser Gln Pro Arg Pro
      85           90           95
Gly Gly Asp Ser Ser Pro Val Val Asp Ser Gly Pro Gly Pro Ala Ser
20           100           105           110
Asn Leu Thr Ser Val Pro Val Pro His Thr Thr Ala Leu Ser Leu Pro
      115           120           125
Ala Cys Pro Glu Glu Ser Pro Leu Leu Val Gly Pro Met Leu Ile Glu
      130           135           140
25Phe Asn Met Pro Val Asp Leu Glu Leu Val Ala Lys Gln Asn Pro Asn
      145           150           155           160
Val Lys Met Gly Gly Arg Tyr Ala Pro Arg Asp Cys Val Ser Pro His
      165           170           175
Lys Val Ala Ile Ile Ile Pro Phe Arg Asn Arg Gln Glu His Leu Lys
30           180           185           190
Tyr Trp Leu Tyr Tyr Leu His Pro Val Leu Gln Arg Gln Gln Leu Asp
      195           200           205
Tyr Gly Ile Tyr Val Ile Asn Gln Ala Gly Asp Thr Ile Phe Asn Arg
      210           215           220
35Ala Lys Leu Leu Asn Val Gly Phe Gln Glu Ala Leu Lys Asp Tyr Asp
      225           230           235           240
Tyr Thr Cys Phe Val Phe Ser Asp Val Asp Leu Ile Pro Met Asn Asp
      245           250           255
His Asn Ala Tyr Arg Cys Phe Ser Gln Pro Arg His Ile Ser Val Ala
40           260           265           270
Met Asp Lys Phe Gly Phe Ser Leu Pro Tyr Val Gln Tyr Phe Gly Gly
      275           280           285

```

3

Val Ser Ala Ser Ser Lys Gln Gln Phe Leu Thr Ile Asn Gly Phe Pro  
 290 295 300  
 Asn Asn Tyr Trp Gly Trp Gly Gly Glu Asp Asp Asp Ile Phe Asn Arg  
 305 310 315 320  
 5Leu Val Phe Arg Gly Met Ser Ile Ser Arg Pro Asn Ala Val Val Gly  
 325 330 335  
 Thr Cys Arg Met Ile Arg His Ser Arg Asp Lys Lys Asn Glu Pro Asn  
 340 345 350  
 Pro Gln Arg Phe Asp Arg Ile Ala His Thr Lys Glu Thr Met Leu Ser  
 10 355 360 365  
 Asp Gly Leu Asn Ser Leu Thr Tyr Gln Val Leu Asp Val Gln Arg Tyr  
 370 375 380  
 Pro Leu Tyr Thr Gln Ile Thr Val Asp Ile Gly Thr Pro Ser  
 385 390 395  
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 <212> PRT  
 <213> Mus musculus  
 20  
 <400> 5  
 Met Arg Phe Arg Glu Gln Phe Leu Gly Gly Ser Ala Ala Met Pro Gly  
 1 5 10 15  
 Ala Thr Leu Gln Arg Ala Cys Arg Leu Leu Val Ala Val Cys Ala Leu  
 25 20 25 30  
 His Leu Gly Val Thr Leu Val Tyr Tyr Leu Ser Gly Arg Asp Leu Ser  
 35 40 45  
 Arg Leu Pro Gln Leu Val Gly Val Ser Ser Thr Leu Gln Gly Gly Thr  
 50 55 60  
 30Asn Gly Ala Ala Ala Ser Lys Gln Pro Pro Gly Glu Gln Arg Pro Arg  
 65 70 75 80  
 Gly Ala Arg Pro Pro Pro Leu Gly Val Ser Pro Lys Pro Arg Pro  
 85 90 95  
 Gly Leu Asp Ser Ser Pro Gly Ala Ala Ser Gly Pro Gly Leu Lys Ser  
 35 100 105 110  
 Asn Leu Ser Ser Leu Pro Val Pro Thr Thr Thr Gly Leu Leu Ser Leu  
 115 120 125  
 Pro Ala Cys Pro Glu Glu Ser Pro Leu Leu Val Gly Pro Met Leu Ile  
 130 135 140  
 40Asp Phe Asn Ile Ala Val Asp Leu Glu Leu Leu Ala Lys Lys Asn Pro  
 145 150 155 160

4

Glu Ile Lys Thr Gly Gly Arg Tyr Ser Pro Lys Asp Cys Val Ser Pro  
 165 170 175  
 His Lys Val Ala Ile Ile Ile Pro Phe Arg Asn Arg Gln Glu His Leu  
 180 185 190  
 5Lys Tyr Trp Leu Tyr Tyr Leu His Pro Ile Leu Gln Arg Gln Gln Leu  
 195 200 205  
 Asp Tyr Gly Ile Tyr Val Ile Asn Gln Ala Gly Asp Thr Met Phe Asn  
 210 215 220  
 Arg Ala Lys Leu Leu Asn Ile Gly Phe Gln Glu Ala Leu Lys Asp Tyr  
 10225 230 235 240  
 Asp Tyr Asn Cys Phe Val Phe Ser Asp Val Asp Leu Ile Pro Met Asp  
 245 250 255  
 Asp Arg Asn Ala Tyr Arg Cys Phe Ser Gln Pro Arg His Ile Ser Val  
 260 265 270  
 15Ala Met Asp Lys Phe Gly Phe Ser Leu Pro Tyr Val Gln Tyr Phe Gly  
 275 280 285  
 Gly Val Ser Ala Leu Ser Lys Gln Gln Phe Leu Ala Ile Asn Gly Phe  
 290 295 300  
 Pro Asn Asn Tyr Trp Gly Trp Gly Gly Glu Asp Asp Asp Ile Phe Asn  
 20305 310 315 320  
 Arg Leu Val His Lys Gly Met Ser Ile Ser Arg Pro Asn Ala Val Val  
 325 330 335  
 Gly Arg Cys Arg Met Ile Arg His Ser Arg Asp Lys Lys Asn Glu Pro  
 340 345 350  
 25Asn Pro Gln Arg Phe Asp Arg Ile Ala His Thr Lys Glu Thr Met Arg  
 355 360 365  
 Phe Asp Gly Leu Asn Ser Leu Thr Tyr Lys Val Leu Asp Val Gln Arg  
 370 375 380  
 Tyr Pro Leu Tyr Thr Gln Ile Thr Val Asp Ile Gly Thr Pro Arg  
 30385 390 395

&lt;210&gt; 6

&lt;211&gt; 402

&lt;212&gt; PRT

35&lt;213&gt; Bos taurus

&lt;400&gt; 6

Met Lys Phe Arg Glu Pro Leu Leu Gly Gly Ser Ala Ala Met Pro Gly  
 1 5 10 15  
 40Ala Ser Leu Gln Arg Ala Cys Arg Leu Leu Val Ala Val Cys Ala Leu  
 20 25 30

His Leu Gly Val Thr Leu Val Tyr Tyr Leu Ala Gly Arg Asp Leu Arg  
 35 40 45  
 Arg Leu Pro Gln Leu Val Gly Val His Pro Pro Leu Gln Gly Ser Ser  
 50 55 60  
 5His Gly Ala Ala Ala Ile Gly Gln Pro Ser Gly Glu Leu Arg Leu Arg  
 65 70 75 80  
 Gly Val Ala Pro Pro Pro Pro Leu Gln Asn Ser Ser Lys Pro Arg Ser  
 85 90 95  
 Arg Ala Pro Ser Asn Leu Asp Ala Tyr Ser His Pro Gly Pro Gly Pro  
 10 100 105 110  
 Gly Pro Gly Ser Asn Leu Thr Ser Ala Pro Val Pro Ser Thr Thr Thr  
 115 120 125  
 Arg Ser Leu Thr Ala Cys Pro Glu Glu Ser Pro Leu Leu Val Gly Pro  
 130 135 140  
 15Met Leu Ile Glu Phe Asn Ile Pro Val Asp Leu Lys Leu Ile Glu Gln  
 145 150 155 160  
 Gln Asn Pro Lys Val Lys Leu Gly Gly Arg Tyr Thr Pro Met Asp Cys  
 165 170 175  
 Ile Ser Pro His Lys Val Ala Ile Ile Ile Leu Phe Arg Asn Arg Gln  
 20 180 185 190  
 Glu His Leu Lys Tyr Trp Leu Tyr Tyr Leu His Pro Met Val Gln Arg  
 195 200 205  
 Gln Gln Leu Asp Tyr Gly Ile Tyr Val Ile Asn Gln Ala Gly Glu Ser  
 210 215 220  
 25Met Phe Asn Arg Ala Lys Leu Leu Asn Val Gly Phe Lys Glu Ala Leu  
 225 230 235 240  
 Lys Asp Tyr Asp Tyr Asn Cys Phe Val Phe Ser Asp Val Asp Leu Ile  
 245 250 255  
 Pro Met Asn Asp His Asn Thr Tyr Arg Cys Phe Ser Gln Pro Arg His  
 30 260 265 270  
 Ile Ser Val Ala Met Asp Lys Phe Gly Phe Ser Leu Pro Tyr Val Gln  
 275 280 285  
 Tyr Phe Gly Gly Val Ser Ala Leu Ser Lys Gln Gln Phe Leu Ser Ile  
 290 295 300  
 35Asn Gly Phe Pro Asn Asn Tyr Trp Gly Trp Gly Gly Glu Asp Asp Asp  
 305 310 315 320  
 Ile Tyr Asn Arg Leu Ala Phe Arg Gly Met Ser Val Ser Arg Pro Asn  
 325 330 335  
 Ala Val Ile Gly Lys Cys Arg Met Ile Arg His Ser Arg Asp Lys Lys  
 40 340 345 350  
 Asn Glu Pro Asn Pro Gln Arg Phe Asp Arg Ile Ala His Thr Lys Glu  
 355 360 365

6

Thr Met Leu Ser Asp Gly Leu Asn Ser Leu Thr Tyr Met Val Leu Glu  
 370 375 380  
 Val Gln Arg Tyr Pro Leu Tyr Thr Lys Ile Thr Val Asp Ile Gly Thr  
 385 390 395 400  
 5Pro Ser

&lt;210&gt; 7

&lt;211&gt; 113

10&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 7

Arg Asp Leu Ser Arg Leu Pro Gln Leu Val Gly Val Ser Thr Pro Leu  
 15 1 5 10 15  
 Gln Gly Gly Ser Asn Ser Ala Ala Ala Ile Gly Gln Ser Ser Gly Asp  
 20 25 30  
 Leu Arg Thr Gly Gly Ala Arg Pro Pro Pro Leu Gly Ala Ser Ser  
 35 40 45  
 20Gln Pro Arg Pro Gly Gly Asp Ser Ser Pro Val Val Asp Ser Gly Pro  
 50 55 60  
 Gly Pro Ala Ser Asn Leu Thr Ser Val Pro Val Pro His Thr Thr Ala  
 65 70 75 80  
 Leu Ser Leu Pro Ala Cys Pro Glu Glu Ser Pro Leu Leu Val Gly Pro  
 25 85 90 95  
 Met Leu Ile Glu Phe Asn Met Pro Val Asp Leu Glu Leu Val Ala Lys  
 100 105 110  
 Gln

30

&lt;210&gt; 8

&lt;211&gt; 85

&lt;212&gt; PRT

&lt;213&gt; Bos taurus

35

&lt;400&gt; 8

Arg Asp Leu Arg Arg Leu Pro Gln Leu Val Gly Val His Pro Pro Leu  
 1 5 10 15  
 Gln Gly Ser Ser His Gly Ala Ala Ala Ile Gly Gln Pro Ser Gly Glu  
 40 20 25 30  
 Leu Arg Leu Arg Gly Val Ala Pro Pro Pro Leu Gln Asn Ser Ser  
 35 40 45

7

Lys Pro Arg Ser Arg Ala Pro Ser Asn Leu Asp Ala Tyr Ser His Pro  
 50 55 60  
 Gly Pro Gly Pro Gly Pro Gly Ser Asn Leu Thr Ser Ala Pro Val Pro  
 65 70 75 80  
 5Ser Thr Thr Thr Arg  
 85

&lt;210&gt; 9

&lt;211&gt; 273

10&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 9

Ser Leu Pro Ala Cys Pro Glu Glu Ser Pro Leu Leu Val Gly Pro Met  
 15 1 5 10 15  
 Leu Ile Glu Phe Asn Met Pro Val Asp Leu Glu Leu Val Ala Lys Gln  
 20 25 30  
 Asn Pro Asn Val Lys Met Gly Gly Arg Tyr Ala Pro Arg Asp Cys Val  
 35 40 45  
 20Ser Pro His Lys Val Ala Ile Ile Ile Pro Phe Arg Asn Arg Gln Glu  
 50 55 60  
 His Leu Lys Tyr Trp Leu Tyr Tyr Leu His Pro Val Leu Gln Arg Gln  
 65 70 75 80  
 Gln Leu Asp Tyr Gly Ile Tyr Val Ile Asn Gln Ala Gly Asp Thr Ile  
 25 85 90 95  
 Phe Asn Arg Ala Lys Leu Leu Asn Val Gly Phe Gln Glu Ala Leu Lys  
 100 105 110  
 Asp Tyr Asp Tyr Thr Cys Phe Val Phe Ser Asp Val Asp Leu Ile Pro  
 115 120 125  
 30Met Asn Asp His Asn Ala Tyr Arg Cys Phe Ser Gln Pro Arg His Ile  
 130 135 140  
 Ser Val Ala Met Asp Lys Phe Gly Phe Ser Leu Pro Tyr Val Gln Tyr  
 145 150 155 160  
 Phe Gly Gly Val Ser Ala Ser Ser Lys Gln Gln Phe Leu Thr Ile Asn  
 35 165 170 175  
 Gly Phe Pro Asn Asn Tyr Trp Gly Trp Gly Gly Glu Asp Asp Asp Ile  
 180 185 190  
 Phe Asn Arg Leu Val Phe Arg Gly Met Ser Ile Ser Arg Pro Asn Ala  
 195 200 205  
 40Val Val Gly Thr Cys Arg Met Ile Arg His Ser Arg Asp Lys Lys Asn  
 210 215 220

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      <211> 273
      <212> PRT
      <213> Bos taurus
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                   20                      25                      30
20Asn Pro Lys Val Lys Leu Gly Gly Arg Tyr Thr Pro Met Asp Cys Ile
                   35                      40                      45
  Ser Pro His Lys Val Ala Ile Ile Ile Leu Phe Arg Asn Arg Gln Glu
   50                      55                      60
  His Leu Lys Tyr Trp Leu Tyr Tyr Leu His Pro Met Val Gln Arg Gln
2565                      70                      75                      80
  Gln Leu Asp Tyr Gly Ile Tyr Val Ile Asn Gln Ala Gly Glu Ser Met
                   85                      90                      95
  Phe Asn Arg Ala Lys Leu Leu Asn Val Gly Phe Lys Glu Ala Leu Lys
                   100                      105                      110
30Asp Tyr Asp Tyr Asn Cys Phe Val Phe Ser Asp Val Asp Leu Ile Pro
                   115                      120                      125
  Met Asn Asp His Asn Thr Tyr Arg Cys Phe Ser Gln Pro Arg His Ile
                   130                      135                      140
  Ser Val Ala Met Asp Lys Phe Gly Phe Ser Leu Pro Tyr Val Gln Tyr
35145                      150                      155                      160
  Phe Gly Gly Val Ser Ala Leu Ser Lys Gln Gln Phe Leu Ser Ile Asn
                   165                      170                      175
  Gly Phe Pro Asn Asn Tyr Trp Gly Trp Gly Gly Glu Asp Asp Asp Ile
                   180                      185                      190
40Tyr Asn Arg Leu Ala Phe Arg Gly Met Ser Val Ser Arg Pro Asn Ala
                   195                      200                      205

```



9

Val Ile Gly Lys Cys Arg Met Ile Arg His Ser Arg Asp Lys Lys Asn  
 210 215 220  
 Glu Pro Asn Pro Gln Arg Phe Asp Arg Ile Ala His Thr Lys Glu Thr  
 225 230 235 240  
 5Met Leu Ser Asp Gly Leu Asn Ser Leu Thr Tyr Met Val Leu Glu Val  
 245 250 255  
 Gln Arg Tyr Pro Leu Tyr Thr Lys Ile Thr Val Asp Ile Gly Thr Pro  
 260 265 270  
 Ser

10

<210> 11  
 <211> 1197  
 <212> PRT  
 15<213> Homo sapiens

<400> 11  
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 Cys Gly Cys Cys Gly Cys Gly Ala Thr Gly Cys Cys Ala Gly Gly Cys  
 35 40 45  
 Gly Cys Gly Thr Cys Cys Cys Thr Ala Cys Ala Gly Cys Gly Gly Gly  
 25 50 55 60  
 Cys Cys Thr Gly Cys Cys Gly Cys Cys Thr Gly Cys Thr Cys Gly Thr  
 65 70 75 80  
 Gly Gly Cys Cys Gly Thr Cys Thr Gly Cys Gly Cys Thr Cys Thr Gly  
 85 90 95  
 30Cys Ala Cys Cys Thr Thr Gly Gly Cys Gly Thr Cys Ala Cys Cys Cys  
 100 105 110  
 Thr Cys Gly Thr Thr Thr Ala Cys Thr Ala Cys Cys Thr Gly Gly Cys  
 115 120 125  
 Thr Gly Gly Cys Cys Gly Cys Gly Ala Cys Cys Thr Gly Ala Gly Cys  
 35 130 135 140  
 Cys Gly Cys Cys Thr Gly Cys Cys Cys Cys Ala Ala Cys Thr Gly Gly  
 145 150 155 160  
 Thr Cys Gly Gly Ala Gly Thr Cys Thr Cys Cys Ala Cys Ala Cys Cys  
 165 170 175  
 40Gly Cys Thr Gly Cys Ala Gly Gly Gly Cys Gly Gly Gly Thr Cys Gly  
 180 185 190

10

Ala Ala Cys Ala Gly Thr Gly Cys Cys Gly Cys Cys Gly Cys Cys Ala  
 195 200 205  
 Thr Cys Gly Gly Gly Cys Ala Gly Thr Cys Cys Thr Cys Cys Gly Gly  
 210 215 220  
 SGly Gly Ala Cys Cys Thr Cys Cys Gly Gly Ala Cys Cys Gly Gly Ala  
 225 230 235 240  
 Gly Gly Gly Gly Cys Cys Cys Gly Gly Cys Cys Gly Cys Cys Gly Cys  
 245 250 255  
 Cys Thr Cys Cys Thr Cys Thr Ala Gly Gly Cys Gly Cys Cys Thr Cys  
 10 260 265 270  
 Cys Thr Cys Cys Cys Ala Gly Cys Cys Gly Cys Gly Cys Cys Cys Gly  
 275 280 285  
 Gly Gly Thr Gly Gly Cys Gly Ala Cys Thr Cys Cys Ala Gly Cys Cys  
 290 295 300  
 15Cys Ala Gly Thr Cys Gly Thr Gly Gly Ala Thr Thr Cys Thr Gly Gly  
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 Cys Cys Cys Thr Gly Gly Cys Cys Cys Cys Gly Cys Thr Ala Gly Cys  
 325 330 335  
 Ala Ala Cys Thr Thr Gly Ala Cys Cys Thr Cys Gly Gly Thr Cys Cys  
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 Cys Ala Gly Thr Gly Cys Cys Cys Cys Ala Cys Ala Cys Cys Ala Cys  
 355 360 365  
 Cys Gly Cys Ala Cys Thr Gly Thr Cys Gly Cys Thr Gly Cys Cys Cys  
 370 375 380  
 25Gly Cys Cys Thr Gly Cys Cys Cys Thr Gly Ala Gly Gly Ala Gly Thr  
 385 390 395 400  
 Cys Cys Cys Cys Gly Cys Thr Gly Cys Thr Thr Gly Thr Gly Gly Gly  
 405 410 415  
 Cys Cys Cys Cys Ala Thr Gly Cys Thr Gly Ala Thr Thr Gly Ala Gly  
 30 420 425 430  
 Thr Thr Thr Ala Ala Cys Ala Thr Gly Cys Cys Thr Gly Thr Gly Gly  
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 Ala Cys Cys Thr Gly Gly Ala Gly Cys Thr Cys Gly Thr Gly Gly Cys  
 450 455 460  
 35Ala Ala Ala Gly Cys Ala Gly Ala Ala Cys Cys Cys Ala Ala Ala Thr  
 465 470 475 480  
 Gly Thr Gly Ala Ala Gly Ala Thr Gly Gly Gly Cys Gly Gly Cys Cys  
 485 490 495  
 Gly Cys Thr Ala Thr Gly Cys Cys Cys Cys Cys Ala Gly Gly Gly Ala  
 40 500 505 510  
 Cys Thr Gly Cys Gly Thr Cys Thr Cys Thr Cys Cys Thr Cys Ala Cys  
 515 520 525

Ala Ala Gly Gly Thr Gly Gly Cys Cys Ala Thr Cys Ala Thr Cys Ala  
 530 535 540  
 Thr Thr Cys Cys Ala Thr Thr Cys Cys Gly Cys Ala Ala Cys Cys Gly  
 545 550 555 560  
 5Gly Cys Ala Gly Gly Ala Gly Cys Ala Cys Cys Thr Cys Ala Ala Gly  
 565 570 575  
 Thr Ala Cys Thr Gly Gly Cys Thr Ala Thr Ala Thr Thr Ala Thr Thr  
 580 585 590  
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 Gly Cys Gly Cys Cys Ala Gly Cys Ala Gly Cys Thr Gly Gly Ala Cys  
 610 615 620  
 Thr Ala Thr Gly Gly Cys Ala Thr Cys Thr Ala Thr Gly Thr Thr Ala  
 625 630 635 640  
 15Thr Cys Ala Ala Cys Cys Ala Gly Gly Cys Gly Gly Gly Ala Gly Ala  
 645 650 655  
 Cys Ala Cys Thr Ala Thr Ala Thr Thr Cys Ala Ala Thr Cys Gly Thr  
 660 665 670  
 Gly Cys Thr Ala Ala Gly Cys Thr Cys Cys Thr Cys Ala Ala Thr Gly  
 20 675 680 685  
 Thr Thr Gly Gly Cys Thr Thr Thr Cys Ala Ala Gly Ala Ala Gly Cys  
 690 695 700  
 Cys Thr Thr Gly Ala Ala Gly Gly Ala Cys Thr Ala Thr Gly Ala Cys  
 705 710 715 720  
 25Thr Ala Cys Ala Cys Cys Thr Gly Cys Thr Thr Thr Gly Thr Gly Thr  
 725 730 735  
 Thr Thr Ala Gly Thr Gly Ala Cys Gly Thr Gly Gly Ala Cys Cys Thr  
 740 745 750  
 Cys Ala Thr Thr Cys Cys Ala Ala Thr Gly Ala Ala Thr Gly Ala Thr  
 30 755 760 765  
 Cys Ala Thr Ala Ala Thr Gly Cys Gly Thr Ala Cys Ala Gly Gly Thr  
 770 775 780  
 Gly Thr Thr Thr Thr Thr Cys Ala Cys Ala Gly Cys Cys Ala Cys Gly  
 785 790 795 800  
 35Gly Cys Ala Cys Ala Thr Thr Thr Cys Cys Gly Thr Thr Gly Cys Ala  
 805 810 815  
 Ala Thr Gly Gly Ala Thr Ala Ala Gly Thr Thr Thr Gly Gly Ala Thr  
 820 825 830  
 Thr Cys Ala Gly Cys Cys Thr Ala Cys Cys Thr Thr Ala Thr Gly Thr  
 40 835 840 845  
 Thr Cys Ala Gly Thr Ala Thr Thr Thr Gly Gly Ala Gly Gly Thr  
 850 855 860

12

Gly Thr Cys Thr Cys Thr Gly Cys Thr Thr Cys Ala Ala Gly Thr Ala  
 865 870 875 880  
 Ala Ala Cys Ala Ala Cys Ala Gly Thr Thr Thr Cys Thr Ala Ala Cys  
 885 890 895  
 5Cys Ala Thr Cys Ala Ala Thr Gly Gly Ala Thr Thr Thr Cys Cys Thr  
 900 905 910  
 Ala Ala Thr Ala Ala Thr Thr Ala Thr Thr Gly Gly Gly Gly Cys Thr  
 915 920 925  
 Gly Gly Gly Gly Ala Gly Gly Ala Gly Ala Ala Gly Ala Thr Gly Ala  
 10 930 935 940  
 Thr Gly Ala Cys Ala Thr Thr Thr Thr Thr Ala Ala Cys Ala Gly Ala  
 945 950 955 960  
 Thr Thr Ala Gly Thr Thr Thr Thr Thr Ala Gly Ala Gly Gly Cys Ala  
 965 970 975  
 15Thr Gly Thr Cys Thr Ala Thr Ala Thr Cys Thr Cys Gly Cys Cys Cys  
 980 985 990  
 Ala Ala Ala Thr Gly Cys Thr Gly Thr Gly Gly Thr Cys Gly Gly Gly  
 995 1000 1005  
 Ala Cys Gly Thr Gly Thr Cys Gly Cys Ala Thr Gly Ala Thr Cys Cys  
 20 1010 1015 1020  
 Gly Cys Cys Ala Cys Thr Cys Ala Ala Gly Ala Gly Ala Cys Ala Ala  
 1025 1030 1035 1040  
 Gly Ala Ala Ala Ala Ala Thr Gly Ala Ala Cys Cys Cys Ala Ala Thr  
 1045 1050 1055  
 25Cys Cys Thr Cys Ala Gly Ala Gly Gly Thr Thr Thr Gly Ala Cys Cys  
 1060 1065 1070  
 Gly Ala Ala Thr Thr Gly Cys Ala Cys Ala Cys Ala Cys Ala Ala  
 1075 1080 1085  
 Gly Gly Ala Gly Ala Cys Ala Ala Thr Gly Cys Thr Cys Thr Cys Thr  
 30 1090 1095 1100  
 Gly Ala Thr Gly Gly Thr Thr Thr Gly Ala Ala Cys Thr Cys Ala Cys  
 1105 1110 1115 1120  
 Thr Cys Ala Cys Cys Thr Ala Cys Cys Ala Gly Gly Thr Gly Cys Thr  
 1125 1130 1135  
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 1140 1145 1150  
 Cys Cys Ala Thr Thr Gly Thr Ala Thr Ala Cys Cys Cys Ala Ala Ala  
 1155 1160 1165  
 Thr Cys Ala Cys Ala Gly Thr Gly Gly Ala Cys Ala Thr Cys Gly Gly  
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 Gly Ala Cys Ala Cys Cys Gly Ala Gly Cys Thr Ala Gly  
 1185 1190 1195

13

&lt;210&gt; 12

&lt;211&gt; 36

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

5

&lt;220&gt;

&lt;223&gt; A synthetic primer

&lt;400&gt; 12

10atcggaaga cgcgtcacat ccgccactcg agagac

36

&lt;210&gt; 13

&lt;211&gt; 36

&lt;212&gt; DNA

15&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; A synthetic primer

20&lt;400&gt; 13

atcggaaga cgcgtgagat ccgccactcg agagac

36